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TEXT: INTRODUCTION

Testing students from backgrounds different from the culture in which the test was developed magnifies the probability of invalid results. In addition to the limits of test theory and the constraints associated with a given test, the test administrator is faced with several potential sources of error arising from the differences among the two cultures. These include lack of compatibility of the languages, differences in the experiential backgrounds of the students being tested from those for whom the test was developed, and differences in affective dispositions toward handling testing

environments between the groups of students.

The testing of many American Indian children using exams developed for the majority American society represents a case of cross-cultural testing which is likely to produce invalid results in the form of underestimation of student performance. This digest discusses limitations of the use of standardized tests with many American Indian students and delineates sources and consequences of invalid test results ensuing from the administration of standardized tests to unacculturated American Indian students.

APPLICATION OF STANDARDIZED TESTING TO AMERICAN INDIAN EDUCATION USE OF STANDARDIZED TESTS

Standardized test scores are used to make decisions about programs and individuals. The primary uses of tests to make program decisions involve the use of ability tests in program design and the use of achievement tests in program evaluation.

Several types of tests are used to make decisions about individuals. Aptitude, ability, and intelligence tests are used primarily to help decide selection and placement or to provide feedback to the test-taker concerning his or her capability. Achievement tests may be used in four ways to make decisions about individuals: as a survey of attainment in a content area, as a diagnostic instrument to identify individual strengths and weaknesses in a content area, as a readiness indicator to determine if an individual has attained prerequisites to continue study in a given content area, and as a performance test to estimate the degree of learning of a body of content.

LIMITATIONS OF USE

Generally, when standardized tests are used with American Indian students (on the reservation or in settings with low levels of acculturation) and produce invalid results, the tests usually produce lower or less desirable scores for the Indian test-taker. These score variations are not readily explained by program related factors nor by correlates of test performance which are frequently found in other situations.

In program-related decisions, the underestimation of Indian performance on ability tests may result in the development of an inefficient program design. Underestimation on achievement tests may result in the demise or modification of what in reality is an effective program.

In test-based decisions concerning American Indian students, underestimation can do grave harm to the individual. In both selection and placement the Indian student can be denied opportunity, can be relegated to low-paying work or unemployment or can be placed in a program that is too easy or boring. As feedback, the test results can do harm to the self-esteem and confidence of the Indian student, sometimes resulting in the student giving up or dropping out. With regard to the interpretation of achievement test results, false conclusions concerning the Indian student may lead to teacher

allegations of laziness, disinterest, or stupidity. Underestimation may result in the student not being promoted to advanced levels of instruction, being placed in low-achieving groups, or having to do unnecessary remedial work.

SOURCES OF TEST UNDERESTIMATION

It should be recognized that American Indian tribes embrace a wide range of cultural differences. Treating American Indians as a collective group, regardless of tribe, is the same error of consideration as testing Indian students with standardized tests that have less than three percent Indian students in the norming sample. Uniform research results across tribes are simply nonexistent. Nevertheless, bias found in test scores of one tribe likely exists for several other tribes. A source of underestimation documented for one tribe should in fact be considered as a potential source of underestimation for other tribes until research indicates the contrary for a given tribe.

Underestimation in the standardized testing of American Indian students may have several different sources. These include students not exhibiting behaviors required for successful test-taking; students not reading the questions accurately; students not having the assumed experience or cognitive structure to respond to certain items; and students lacking the opportunity to practice key behaviors required by the test. Each of these behavior patterns of Indian students in the testing situation reflects cultural differences.

The factors that influence Indian test scores, usually considered forms of bias, are well-documented. If only one of the unsuccessful test-taking behaviors could be tracked systematically, then a methodology could be developed to correct the problem of underestimation. However, these behaviors are confounded in that they sometimes occur jointly and at different times in the test-taking process. Additional confounding takes place because many Indian students possess other individual characteristics which normally present testing problems: poverty, low parental education, broken homes, and nonstandard English backgrounds. McDiarmid (1972) discusses the role that poverty, health and nutrition, social conflict, language, and test motivation play in the interpretation of test data on Indian children. The major factors were found to be language and test motivation. Some suggestions to facilitate test fairness have been reported in aptitude and ability assessment, such as in the General Aptitude Test Battery (Hunter, 1983). Measurement professionals have addressed the problem of cultural influence on test performance, but to date an operationally functional treatment of the problem still does not exist.

Many American Indian students fail to exhibit successful test-taking behaviors due to a multiplicity of underlying causes. Cultural beliefs in some tribes may bar competitive behaviors in an academic setting. The student may underestimate the seriousness of the test or fail to adopt a successful response strategy (such as selective scanning for known items, techniques of using partial information to guess correct answers, or

efficient time use). Students exhibit a dichotomy in regard to their perceptions of the purposes and significance of tests (Deyhle, 1986). Acculturation has been found to be an influence on both achievement and ability tests (Guilmet, 1983). Guilmet suggests that acculturation and test motivation are associated.

The second most influential factor leading to underestimation is language; that is, inability of many Indian students to read the questions accurately or to give appropriate verbal responses. Tests which do not make extensive use of verbal language are not subject to underestimation as much as those that depend on verbal instructions and reading. For example, Shutt (1962) found that the Hiskey-Nebraska test of Learning Aptitude, a non-verbal test designed for use with deaf children produced estimates of higher potential for Indian children than the Wechsler Test. The influence of learning English as a second language is further reinforced by the fact that many Indian students' first languages are unwritten.

Students' lack of the assumed experiences or cognitive structures necessary to respond to certain items is caused both by the culture and by the setting in which many children are reared. The isolated, rural environment of many reservation settings, the restrictive poverty of many families, and the cultural ties that promote continued identification with the tribe deny students important knowledge of the outside world. Fortune (1985) found that a majority of the Indian students in an economically deprived reservation setting lacked the experience needed to understand the examples that teachers use in instruction and, consequently, the background needed to perform well on achievement tests. A study of intelligence and aptitude test results of one tribe found nonstandard scores (Mishra, 1981). These results are further substantiated by unique patterns of measured Indian aptitude found by other studies. On the WISC-R test, Indian children show a pattern of greater strength than the norm population in relational, holistic and right hemisphere information processing (Browne, 1984). Indian children in two other reservation settings demonstrated a performance pattern on the Wechsler different from normal and learning disabled Anglo children. Spatial abilities were more well-developed than sequencing skills (McShane and Plas, 1982).

Although Bolo and Varrati (1983) found that test scores for Indian students were higher for those who had the best attendance records and stayed in the same district, many Indian students live in discouraging situations where there is little congruence between their life experiences and the skills needed for testing. These students often do not speak English outside of school. In addition, there are few books available for them to read. Personal and community poverty, aggravated by lack of industrial development and employed role models, does little to stimulate student awareness of mathematics and its applications.

CONSIDERATIONS FOR TEST USE

Applications of the principles of test theory to the source of underestimation leads to

several useful maxims for using standardized tests with many American Indian students. Prior to the administration of standardized tests to American Indian students or to the interpretation of American Indian test data, the test administrator can do several things that may contribute to better student performance. For ability, aptitude, and intelligence testing, one should ensure that the students have had exposure to the experiences assumed in the design of the test, the opportunity to develop the requisite skills, and the circumstances they need in order to value a successful test performance. For achievement tests, one should make certain that the students have been instructionally exposed to the content of the test and have had opportunity to apply this content; that they have had experience in taking the test, are test-wise and able to understand test instructions and time requirements; that the test is to be or was administered at a time similar to when it was normed; and that the test has Indian norms. A few of the national testing corporations, such as the developers of the California Achievement Test, are developing Indian norms for their tests.

Several papers offer additional reading and help in the area of testing Indian students. They include guidelines for testing bicultural children (Bernardoni, 1967) and for second language testing (Upshur and Fata, 1968), as well as annotations of tests found appropriate for use with American Indians (Educational Testing Service, 1982).

Recommendations for future research appear fraught with problems. The natural recommendation for most tribes to become involved in the process of developing their own tests has to be considered in the light of the high costs and resource requirements needed to develop a quality test. Tribal differences and dispersion of many Indian students would suggest that tribally developed tests may lack enough general applications across tribes for merit. Further research may be better invested in documenting the similarity and differences of test reactions and in the development of intervention programs to teach test administrators to use tests in an appropriate manner with American Indian students.

FOR MORE INFORMATION

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